

# AMD EPYC™ 9004 SERIES PROCESSORS

## TOGETHER WE ADVANCE DATA CENTER COMPUTING

### AT A GLANCE

We take the mystery out of CPU selection with AMD EPYC™ processors: Just choose the core count, frequency, and L3 cache size your workload requires. Memory capacity, security features, I/O bandwidth, and the rest are included at no extra cost. Fourth-generation AMD EPYC processors build upon our innovative hybrid multi-chip architecture to deliver on the defining metric of our day: the ultimate combination of performance and efficiency.



### BREAKTHROUGH PERFORMANCE

**Accelerate productivity, make more informed decisions, and speed time to market with a common platform that delivers the performance you need.**

*How can you propel compute-challenged workloads?* AMD EPYC 97x4 processors offer the performance, density, energy efficiency and compatibility needed to provide no-compromise computing for growing cloud-native environments.

*How can you push memory-demanding workloads?* Up to 1152 MB of L3 cache pushes applications beyond their prior limits including computational fluid and molecular dynamics, RTL simulation, and climate modeling. Compare servers with two 96-Core EPYC 9684X processors with AMD 3D V-Cache™ technology to servers with two 56-core Intel Xeon 8480+ processors and enjoy an average 2.1x speedup running the ANSYS® Fluent® 2022 R2 CFD workload.<sup>1</sup>

*What if I need excellent balanced, performance?* Speed your business workloads, software development, data management, analytics, collaborative, and infrastructure applications with the world's highest-per-core-performance x86-architecture CPU.<sup>SP5-014B</sup>



### MODERNIZE YOUR INFRASTRUCTURE

**When you upgrade your infrastructure, you want the most innovative design, high density, excellent energy efficiency, and low total cost of ownership.**

*Performance, density, and cache size:* with the AMD EPYC 9004 series, we deliver leading performance per core with EPYC 96xx processors,<sup>SP5-014B</sup> the highest thread density on the planet with the EPYC 97xx processors,<sup>EPYC-025B</sup> and the industry's largest L3 cache with AMD 3D V-Cache™ technology.<sup>EPYC-024B</sup>

*Balance and efficiency:* 4th Gen EPYC CPUs power the world's most energy-efficient servers enabling new levels of power efficiency while supporting workload scale.<sup>EPYC-028C</sup> They strive for balance, and with more memory channels than any other x86 processor, delivering data to the CPU swiftly.



### COMPUTE WITH CONFIDENCE

**To propel your business forward, you need to confidently navigate today's risks, complexities, and requirements.**

*The right path:* you know that choosing AMD EPYC processors helps put you on the right path for the future. AMD EPYC processors are 100% x86 compatible so you can easily leverage the extensive x86 software ecosystem.

*Multiple innovation paths:* our hybrid, multi-chip architecture enables us to move forward on multiple innovation paths at once—by splitting out I/O from computing, we are the first to deliver x86 CPUs based on 5nm process technology. Our 4th generation processors offer three different CPU options, one for balanced workloads and per-core performance (96xx CPUs), one for the highest core density (97xx CPUs), and one with high level 3 cache (CPUs with AMD 3D V-Cache technology).

*Artificial intelligence acceleration:* full support for AVX-512 includes BFLOAT16 and VNNI instructions to help speed artificial intelligence and machine learning applications.

*Generational improvements:* we have established a track record of delivering double-digit improvements in instructions per clock with every new processor generation, raising confidence that you will be on the right path for the future.

*AMD Infinity Guard® features:* speaking of confidence, we deliver security features that are “hardened at the core” with an integrated security processor that helps protect your most valuable assets—your data.

# AMD EPYC™ 9004 SERIES PROCESSORS

MODEL	CORES	THREADS	BASE FREQ. (GHZ)	UP TO MAX BOOST FREQ. (GHZ) <sup>a</sup>	ALL-CORE BOOST (GHZ) <sup>b</sup>	DEFAULT TDP (W)	L3 CACHE (MB)	DDR5 CHANNELS	UP TO MAX DDR5 FREQ. (1DPC)	PER-SOCKET THEORETICAL MEMORY BANDWIDTH (GB/S)	PCIe® GEN 5 LANES	2P/1P
9754	128	256	2.25	3.10	3.10	360	256	12	4800	460.8	128	2P/1P
9754S		128										2P/1P
9734	112	224	2.20	3.00	3.00	340	256	12	4800	460.8	128	2P/1P
9654	96	192	2.40	3.70	3.55	360	384	12	4800	460.8	128	2P/1P
9654P												1P
9634	84	168	2.25	3.70	3.10	290	384	12	4800	460.8	128	2P/1P
9554	64	128	3.10	3.75	3.75	360	256	12	4800	460.8	128	2P/1P
9554P												1P
9534	64	128	2.45	3.70	3.55	280	256	12	4800	460.8	128	2P/1P
9454	48	64	2.75	3.80	3.65	290	256	12	4800	460.8	128	2P/1P
9454P												1P
9354	32	64	3.25	3.80	3.75	280	256	12	4800	460.8	128	2P/1P
9354P												1P
9334	32	56	2.70	3.90	3.85	210	128	12	4800	460.8	128	2P/1P
9254	24	48	2.90	4.15	3.90	200	128	12	4800	460.8	128	2P/1P
9224	24	48	2.50	3.70	3.65	200	64	12	4800	460.8	128	2P/1P
9124	16	32	3.00	3.70	3.60	200	64	12	4800	460.8	128	2P/1P
AMD EPYC 9004 SERIES PROCESSORS WITH AMD 3D V-CACHE												
9684X	96	192	2.55	3.70	3.42	400	1152	12	4800	460.8	128	2P/1P
9384X	32	64	3.10	3.90	3.50	320	768	12	4800	460.8	128	2P/1P
9184X	16	32	3.55	4.20	3.85	320	768	12	4800	460.8	128	2P/1P
HIGH-FREQUENCY AMD EPYC 9004 SERIES PROCESSORS												
9474F	48	96	3.60	4.10	3.95	360	256	12	4800	460.8	128	2P/1P
9374F	32	64	3.85	4.30	4.10	320	256	12	4800	460.8	128	2P/1P
9274F	24	48	4.05	4.30	4.10	320	256	12	4800	460.8	128	2P/1P
9174F	16	32	4.10	4.40	4.15	320	256	12	4800	460.8	128	2P/1P

a. Maximum boost for AMD EPYC processors is the maximum frequency achievable by any single core on the processor under normal operating conditions for server systems. EPYC-18.  
b. All-core boost for AMD EPYC processors is the average frequency of all processor cores running in performance mode while utilizing a low activity workload. Actual achievable all-core boost will vary based on hardware, software, workloads and other conditions. (EPYC-021)

## FOOTNOTES

For details on the footnotes used in this document, click on the links or visit [amd.com/en/claims/epyc4](https://amd.com/en/claims/epyc4)

- Source: [amd-epyc-9004x-pb-ansys-fluent.pdf](https://amd.com/en/claims/epyc4)
- AMD Infinity Guard features vary by EPYC processor generations. Infinity Guard features must be enabled by server OEMs and/or Cloud Service Providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at <https://www.amd.com/en/technologies/infinity-guard>. GD-183

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